

Use of a Structured Encounter Form to Improve Well-Child Care Documentation

Diane J. Madlon-Kay, MD

Objective: To determine if a structured encounter form for well-child care improves documentation of well-child care.

Design: Retrospective medical record review of a before-and-after trial.

Setting: Family practice residency clinic serving a primarily low-socioeconomic urban population.

Patients: Children younger than 6 years receiving well-child care visits.

Intervention: Detailed checklists were developed and implemented in 1994 for each of 12 well-child examinations for the assessment of children aged 2 weeks to 5 years based on recommendations from the American Academy of Pediatrics and the US Preventive Services Task Force.

Main Outcome Measures: Documentation of multiple aspects of well-child care, including developmental assessment, safety and nutrition counseling, and laboratory tests for 6-month periods in 1993 and 1994, before and after implementation of the structured encounter form.

Results: A total of 842 well-child visits were reviewed. Documentation improved significantly with the use of the encounter form for 19 of the 23 aspects of well-child care that were studied. Screening test rates were less than optimal despite the encounter form.

Conclusions: The structured encounter form was very effective in improving documentation of almost all aspects of well-child care. However, effective communication is needed among physicians, nurses, and parents to ensure optimal screening test rates.

Arch Fam Med. 1998;7:480-483

WITH THE increase in managed care competition, there is growing interest in measuring the quality of care that children receive and in "grading" the services provided by health care delivery systems. Health care "report cards" for pediatric preventive services have traditionally reported immunization rates only. A set of measures reflecting preventive services for preschool children has recently been suggested for inclusion in a pediatric report card.¹ Reflecting the health supervision guidelines of the American Academy of Pediatrics, the measures include the number of well-child visits, immunizations, growth parameters, nutritional counseling, anticipatory guidance, behavioral and developmental assessment, vision and anemia screening, and selective screening for cholesterol, lead, and tuberculosis.

A variety of office tools to improve the provision of health promotion and

disease prevention services have been reported and studied quite extensively in adults.² However, a literature search revealed only 2 studies on the use of such tools for well-child care. In an encouraging 1990 study by Duggan et al,³ the use of a structured encounter form led to improved documentation by pediatric residents in all aspects of care that were studied. The structured encounter form was also found to improve actual provider performance during the visit. Unfortunately, a potential selection bias was present because the residents could choose whether to use the forms. Moreover, the forms used in this study emphasized the physical examination, with almost half the items evaluated relating to it. In addition, laboratory tests and immunizations were excluded from the study. A more recent study by Zenni and Robinson⁴ also had some encouraging findings. Pediatric residents were randomized to use structured encounter forms that focused on developmental

From the Department of Family and Community Medicine, St Paul Ramsey Medical Center, St Paul, Minn.

PARTICIPANTS AND METHODS

The study took place at the St Paul Ramsey Medical Center family medicine residency clinic, St Paul, Minn. The clinic serves a primarily white, low-socioeconomic, inner-city population. The residency faculty developed detailed checklists for each of 12 well-child examinations for the assessment of children aged 2 weeks to 5 years based on recommendations from the American Academy of Pediatrics and the US Preventive Services Task Force (**Figure**). The checklists were placed in charts beginning in December 1993. At that time, use of the checklists was reviewed with the residents at a departmental meeting. Because the patient population was considered at high risk, tuberculosis and lead testing were recommended for all children at appropriate ages. Each visit checklist follows the same format: key family checks, nutrition, development, safety, guidance, medication, allergy, physical examination, laboratory tests, immunizations, and diagnoses. The Infant Rapid Screen and the Toddler Rapid Screen were used for the developmental assessment of children up to the age of 4 years.⁷ Stereovision testing was performed using a Lang stereotest card.⁸ The back of the checklist sheet had space that could be used for comments and an optional comprehensive physical examination checklist.

Before 1994, a "shingle" format was used for documenting all visits made by children. The shingle contained a brief developmental checklist, boxes for vital signs and body measurements, and a comprehensive physical examination checklist. Each shingle is 16 × 11 cm, and 6 shingles can be attached to 1 piece of paper in the medical record.

Computerized billing records were used to identify all well-child visits of children younger than 6 years for 6-month periods in 1993 and 1994. Trained assistants reviewed the medical records for the following items: provider name, level of training of provider, patient age, diagnoses made at the visit, and documentation of the items corresponding to the categories in the 1994 checklist.

Grouped Student *t* tests and χ^2 analyses were used to compare before-and-after structured encounter form intervention (1993 vs 1994) figures for average scores and proportions, respectively. All analyses were done using SPSS for Windows (versions 6.1 and 7.0, SPSS Inc, Chicago, Ill).

milestones or on anticipatory guidance and preventive care during health supervision visits. Parent satisfaction with developmental assessment was increased and physician compliance with guidelines for developmental assessment was improved with the forms that focused on developmental milestones. Such improvements were not noted with the forms that focused on anticipatory guidance and preventive care. No other aspects of well-child care were evaluated.

The purpose of this study was to determine if the use of a structured encounter form designed from recommendations from the American Academy of Pediatrics⁵ and the US Preventive Services Task Force⁶ improves documentation of all aspects of well-child care, including laboratory testing and immunizations.

RESULTS

Three hundred seventy-four and 468 well-child visits were identified for the 6-month periods in 1993 and 1994, respectively. As shown in the **Table**, documentation of almost all items improved significantly with the use of the structured encounter form.

COMMENT

The structured encounter form was very effective in improving documentation of almost all aspects of well-child care. It is particularly encouraging to note the marked improvement in counseling documentation, given the importance placed on counseling by the US Preventive Services Task Force⁶ and others. Documentation of the physical examination was one of the few areas unaffected by the form. Because the form placed relatively little emphasis on the examination, this finding is not surprising.

Although the frequency of most testing improved significantly with use of the structured encounter form, the rates were less than ideal for most tests. For example, only 39% of children received Mantoux testing and 40% had visual acuity testing at the visits indicated on the encounter form. It is not known why higher testing rates were not achieved. Such testing does require communication between the physicians and nurses, as well as the consent of the parent. The encounter form may need to delineate nurse and physician responsibilities more clearly for the screening tests. It is also possible that individual physicians thought that certain children were not at high risk for tuberculosis or lead poisoning and chose not to test them.

Several studies have documented less than optimal testing rates in other populations.⁹⁻¹² Anemia screening rates have been reported at 44% to 84%, tuberculosis testing at 17% to 83%, and lead screening at 20% to 57%. However, these studies included all established patients in the practices, whether or not they received well-child care. Children receiving well-child care would be expected to have screening rates closer to ideal. However, children have been shown to be underscreened for vision problems, even at well-child visits, with only 34% screened for visual acuity and 32% for binocular vision in a large multipractice study.¹³

The results of this study of pediatric preventive services are consistent with those demonstrating the effectiveness of a variety of office tools in improving documentation for adults.² They expand on the findings of the 2 previous studies on the use of an encounter form for well children by including all aspects of well-

Documentation of Well-Child Care Before (1993) and After (1994) the Use of a Structured Encounter Form

Category*	1993	1994	P
Number			
Key family checks	1.57	3.7	<.001
Nutrition	0.96	2.45	<.001
Development	2.43	8.33	<.001
Safety	0.67	2.81	<.001
Guidance	1.09	3.44	<.001
Physical examination	15.48	15.19	.58
Percentage			
Weight	98.1	100	<.01
Weight percentile	68.7	87.4	<.001
Height	95.2	97.9	<.05
Height percentile	65.7	84.8	<.001
OFC	80.7	90.7	<.001
OFC percentile	64.1	79.1	<.001
Medication allergy	17.9	64.9	<.001
Blood pressure	53.2	62.5	.18
Stereovision	10.6	55.0	<.001
Visual acuity	17.0	39.6	<.001
Microlead	39.4	64.9	<.001
Hemoglobin	77.8	89.4	<.05
Mantoux testing	30.2	38.9	.29
Cholesterol	3.2	14.4	<.01
Urinalysis	74.3	60.0	.17
Vaccine education	30.1	63.2	<.001
Immunizations	81.0	88.9	<.001

*OFC indicates occipital frontal circumference.

child care, including testing and immunizations.^{3,8} Because all physicians used the structured encounter forms in 1994, the potential selection bias of the study by Duggan et al³ was avoided. The use of a structured encounter form such as that used in this study could be a valuable aid to physicians wanting to improve their provision of well-child care, as well as the grade on their pediatric prevention report card.

Accepted for publication August 8, 1997.

This study was funded by grant G9525 from the American Academy of Family Physicians, Kansas City, Mo.

I thank Pamela Ristau and Jennifer Andersen for their valuable assistance with this project.

Corresponding author: Diane J. Madlon-Kay, MD, Department of Family and Community Medicine, Regions Hospital, 640 Jackson St, St Paul, MN 55101.

REFERENCES

1. Bauchner H. A pediatric report card for preventive services. *Pediatrics*. 1995;95:930-934.
2. Frame PS. Health maintenance in clinical practice: strategies and barriers. *Am Fam Physician*. 1992;45:1192-1200.
3. Duggan AK, Starfield B, DeAngelis C. Structured encounter form: the impact on provider performance and recording of well-child care. *Pediatrics*. 1990;85:104-113.
4. Zenni EA, Robinson TN. Effects of structured encounter forms on pediatric house staff knowledge, parent satisfaction, and quality of care. *Arch Pediatr Adolesc Med*. 1996;150:975-980.
5. Committee on Psychosocial Aspects of Child and Family Health. *Guidelines for Health Supervision II*. Elk Grove Village, Ill: American Academy of Pediatrics; 1988.
6. US Preventive Services Task Force. *Guide to Clinical Preventive Services*. Baltimore, Md: Williams & Wilkins; 1989.
7. Haber JS. Early diagnosis and referral of children with developmental disabilities. *Am Fam Physician*. 1991;43:132-140.
8. Lang J. A new stereotest. *J Pediatr Ophthalmol Strabismus*. 1983;20:72-74.
9. Bordley WC, Margolis PA, Lannon CM. The delivery of immunizations and other preventive services in private practices. *Pediatrics*. 1996;97:467-473.
10. Brown J, Melinkovich P, Gitterman B, Ricketts S. Missed opportunities in preventive pediatric health care: immunizations or well-child care visits? *AJDC*. 1993;147:1081-1084.
11. Fairbrother G, Friedman S, DuMont KA, Lobach KS. Markers for primary care: missed opportunities to immunize and screen for lead and tuberculosis by private physicians serving large numbers of inner-city Medicaid-eligible children. *Pediatrics*. 1996;97:785-790.
12. Rodewald LE, Szilagyi PG, Shiu T, Humiston SG, LeBaron C, Hall CB. Is under-immunization a marker for insufficient utilization of preventive and primary care? *Arch Pediatr Adolesc Med*. 1995;149:393-397.
13. Wasserman RC, Croft CA, Brotherton SE. Preschool vision screening in pediatric practice: a study from the pediatric research in office settings (PROS) network. *Pediatrics*. 1992;89:834-838.

Clinical Pearl

Blood Pressure Auscultatory Gap

Even when controlling for major known risk factors, an auscultatory gap during blood pressure measurement was associated with more atherosclerotic plaques and arterial stiffness. (*Ann Intern Med*. 1996;124:877-883.)